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Award Number: W81XWH-04-1-0575

TITLE: Nutritional and Genetic Determinants of Early Puberty

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REPORT DATE: June 2007

TYPE OF REPORT: Annual

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

DISTRIBUTION STATEMENT: Approved for Public Release;
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REPORT DOCUMENTATION PAGE				<i>Form Approved</i> OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 01-06-2007		2. REPORT TYPE Annual		3. DATES COVERED (From - To) 15 May 2006 – 14 May 2007	
4. TITLE AND SUBTITLE Nutritional and Genetic Determinants of Early Puberty				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER W81XWH-04-1-0575	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Loïc Le Marchand, M.D. E-Mail: loic@crch.hawaii.edu				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Hawaii Honolulu, HI 96822-2303				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <p>Past studies suggest that early menarche, growth velocity, and specific hormonal patterns during breast development may be critical in determining risk of breast cancer later in life. Nutritional factors during childhood and puberty, and inherited genetic factors are suspected to interact in modulating these early-life exposures. However, the biological processes involved remain poorly understood.</p> <p>We propose to test the relationships between nutrition, genetic factors, hormonal levels and early life events contributing to breast cancer risk in a unique cohort of 323 adolescent girls of Caucasian or Asian ancestry originally recruited for the Female Adolescent Maturation (FAM) Study. These girls were studied twice, 2 years apart, for dietary intake, body size and composition, sexual maturation, growth and bone density. Data collection will be extended by conducting a third examination and obtaining blood samples for DNA genotyping and hormone analysis. A cross-sectional sample of additional girls were also recruited.</p> <p>We have completed study recruitment as of 06/30/07. To date, 283 girls have come in for study visits. Of the 283 girls, 106 are from the FAM cohort and 177 are new recruits from Kaiser. During the no-cost extension, we will complete data and sample collection, complete data entry, perform laboratory assays and analyze the data.</p>					
15. SUBJECT TERMS Molecular epidemiology, nutrition, genetics, hormones					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 6	19a. NAME OF RESPONSIBLE PERSON USAMRMC
a. REPORT U	b. ABSTRACT U	c. THIS PAGE U			19b. TELEPHONE NUMBER (include area code)

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INTRODUCTION

Past studies suggest that early menarche, growth velocity, and specific hormonal patterns during breast development may be critical in determining risk of breast cancer later in life (1-5). Nutritional factors (i.e., adiposity, physical activity and diet) during childhood and puberty, and inherited genetic factors are suspected to interact in modulating these early-life exposures (2, 6-15). However, the biological processes involved remain poorly understood. These gene-environment interactions may explain the remarkable increase in breast cancer incidence observed among US-born Asian women. We propose to test the relationships between nutrition, genetic factors, hormonal levels and early life events contributing to breast cancer risk in a unique cohort of 323 adolescent girls of Caucasian or Asian ancestry originally recruited for the Female Adolescent Maturation (FAM) Study (USDA NRI grant 99-00700). These girls were first studied in 1999-2000 at age 9-14 years and, again two years later in 2002-2003, for dietary intake, body size and composition, sexual maturation (Tanner staging), growth and bone density. Data collection was extended by conducting a third examination and obtaining blood samples for DNA genotyping and hormone analysis at a time when most girls have attained menarche. A cross-sectional sample of additional girls was also recruited from the membership of an HMO (Kaiser Permanente - Hawaii). To date, we have a total of 283 girls recruited. Of the 283 girls, 106 are from the FAM cohort and 177 are new recruits from Kaiser.

BODY

Below are relevant updates on the research accomplishments as outlined in the approved Statement of Work through June 30, 2007.

Task 1. Plan Study and Procedures

- a. Identify potential subjects for the new recruitment
 - a. Kaiser identified potential subjects from their database for recruitment and completed recruitment at 283 girls. Members were identified based on ethnicity, age, gender, and living in the Honolulu area.

Task 2. Subject Recruitment and Data Collection

- a. Enroll FAM participants for the follow-up examination, 4 years after the baseline examination.
 - a. 102 girls from the cohort were recruited for this study.
- b. Enroll new participants
 - a. 177 new girls were recruited from the Kaiser membership database to this study.
- c. Schedule clinical exam and perform data collection
 - a. A total of 283 girls have come in for the two study visits.
 - b. Of the 283 girls, 102 are from the original FAM cohort and 177 are new recruits.
 - c. Portfolios with health education material were sent out to those who have completed the study
- d. Collect blood and urine samples
 - a. 276 girls have completed a blood drawn and started urine collection and menstrual calendars.
- e. Process biospecimen for storage
 - a. All collected specimens have been processed for storage. Samples are stored at -80°C.
- f. Enter data and maintain databases
 - a. Questionnaires are being coded and entered.
 - b. We expect to complete data entry in early Fall 2007.

Task 3: Perform Genotyping assays:

- a. Extraction of DNA is ongoing

- b. Perform quality control on DNA is ongoing
- c. Detect polymorphisms with Taqman, dHPLC, sequencing or RFLP has started and will be completed during Fall 2007
- d. Document and archive results, including QC samples
- e. Maintain database with results

Task 4: Perform Hormone Analyses: will be done in the Fall 2007

Task 5. Interim Analyses

- a. Interim analyses will start in Fall 2007, after the data entry is completed.
- b. Write annual reports: An annual report was completed May 14, 2006. This is the third annual report.

Task 6: Final Analyses and Report Writing: Will be done in Spring 2008.

KEY RESEARCH ACCOMPLISHMENTS

N/A

REPORTABLE OUTCOMES

N/A

CONCLUSIONS

N/A

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